REMARKS

As an initial matter, the Applicant wishes to thank the Examiner for acknowledging that claims 18 and 19 would be allowable if rewritten to overcome any rejections under 35 U.S.C. § 112, second paragraph, and claims 6, 7, 14, and 15 would be allowable if written in independent form to include the limitations of the base claim and any intervening claims and rewritten to overcome any rejections under 35 U.S.C. § 112, second paragraph. The claims have been so amended. The Applicant has amended or produced supporting arguments regarding claims 1, 5, 7, 10-11, and 18-19 to satisfy any current 35 U.S.C. § 112 rejections. The Applicant has also amended claims 1, 5, 9, 10, 11, 12 and 17. The Applicant has canceled claims 4 and 13 and incorporated them in claim 1 and 10, respectively. The Applicant submits that these minor amendments and corrections herein are made without prejudice, and that no new matter has been added.

Claims 1-19 Satisfy 35 U.S.C. § 112, Second Paragraph.

The Examiner rejected claims 1-19 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Office action, para. 3-10.

Regarding claims 1, 10, and 18, the Applicant has amended the claims to more clearly describe a sequential implementation. As the roller moves across the grooves of the base tool, one-by-one the grooves are engaged by the lobes. For example, referring to Figures 3-5, lobe A engages the first groove, then, in sequence, lobe B engages the second groove, and so on, one groove at a time. Regarding claim 5 and 7, the claims have been amended. Regarding claim 11, as amended, the support for "the fabric" is provided in claim 10, step (c), first line. Similarly, regarding claim 19, as amended, the support for "the fabric" is provided in claim 18, step (c), first line.

Claims 1, 3, and 8 are not Anticipated.

The Applicant respectfully disagrees with the assertion that claims 1, 3, and 8 are anticipated by Graff (U.S. Patent No. 3,477,894).

In general, embodiments of the Applicant's invention include a method for fabricating corrugated composite stiffeners which provide a base tool having grooves formed in an outer surface and a roller having a rotating shaft and a removable lobed member surrounding the shaft preferably formed of an elastomeric material. The lobes of the lobed member form a radial array around the shaft and match the contours of the grooves in the base tool. A section of prepreg fabric is placed between the roller and the base tool, and the roller is rotated to sequentially engage the lobes with the grooves, the lobes pressing the fabric into the grooves, the fabric conforming to the contours of the grooves. Several layers of fabric can be and are preferably applied. Then the lobed member can be released from the shaft, laid out flat, and placed on the fabric on the base tool, the lobes locating in the grooves. The base tool, fabric, and lobed member can then be enclosed in a vacuum bag and heated to cure the fabric to form a multilayered stiffener.

Graff describes an apparatus mounted and movable on wheels 14 on a track for producing shaped parts from a laminated sheet 18. Referring to Figure 1, a laminated sheet 18 is fed by conveyor belts 11 from a plane above a corrugated molding plate downwardly and upon the molding track 16 by a molding roller 19. *See also*, col. 4, lines 34-72. The conveyor belts 11 deliver the laminated sheet 18 at a speed greater than the relative speed between the frame 1 and molding track 16 so that the laminated sheet 18 is "deposited free from tensile stress." *See* col. 4, line 73 to col. 5, line 1 and col. 1, lines 26-30. A curing furnace 20 movable on wheels 21 can be moved along uncured sections of the now corrugated laminated sheet 18 leaving cured sheet 27, behind. *See* col. 5, lines 1-9. Referring to Figure 3, in an alternate embodiment for producing cupola-shaped parts (dome-shaped parts, not corrugated-shaped parts), the laminated sheet 18 is bridged across a pair of flanges 26 to create an airspace below the laminated sheet 18 and a vacuum line 24 is used to cause a pressure differential between the top and bottom of the laminated sheet 18 between flanges 26 of the box shaped mold 22 to form the cupola shaped part 22. *See also*, col. 5, lines 10-40.

Graff does not, however, disclose a *lobed* member 41 mounted on a shaft and having *lobes* 43 that match the contours of the grooves 33, as do embodiments of the Applicant's invention, including that featured in claim 1. *See* Application, page 7, paragraph 0018, and Claim 1. Instead, referring to Figure 1, Graff describes a molding roller 19 having a plurality of *rollers* rather than lobes that simultaneously engage a *pair* of contours of the molding track 16. The positioning of the rollers of roller 19 is such that a pair of rollers *simultaneously* engages a *pair* of contours of the molding track 16, rather than through sequential engagement. Additionally, the roller 19 is not described as being formed by having itself wrapped around the shaft and releasably secured at opposing ends of itself as is the lobed member in claim 1. Graff also does not disclose multiple iterations of placing layers of a prepeg fabric on a tool to form a multilayered panel, as featured in claim 2.

Graff further does not disclose maintaining a select tension in the fabric as the lobes press the fabric into the grooves, as featured in claim 3. As stated above, Graff uses roller 19 to press the laminated sheet 18 downwardly upon molding track 16, whereby the laminated sheet 18 is deposited free of tensile stress. *See* col. 1, lines 26-30. In other words, Graff teaches depositing the laminated sheet 18 with no tension and without correspondingly teaching a method or describing an apparatus to provide tension to the laminated sheet 18.

Graff also further does not disclose providing "lobes of the lobed member with a sine-wave profile," as featured in claim 8. As stated above, Graff does not teach roller 19 having lobes. Referring to Figure 1, roller 19 uses a plurality of individual and separated rollers or wheels, apparently each having their own axle. Thus, because Graff does not teach a lobed member, Graff cannot teach lobes of the non-existent lobed member having or forming a sine-wave profile. In fact, referring to Figure 1, even if one were to somehow try to equate the rollers of roller 19 with lobes as described in the application, the rollers of roller 19 can not form a sine wave profile because they are separate and spaced apart and have a flat portion therebetween.

Claims 1, 5, and 8 are not Anticipated.

The Applicant respectfully disagrees with the assertion that claims 1, 5, and 8 are anticipated by Weight et al. (U.S. Patent Publication No. 2001/0001409).

Weight et al. describes a method and apparatus including an assembly of mold elements for constructing honeycomb core material. Referring to paragraph 0017, Weight et al. describes forming the honeycomb core by positioning a composite fiber 9 on a holding panel 8; rolling over the fiber 9 with a cylindrical roller 10 having gear-shaped lobes 11 extending outward from its periphery (Figure 2). After the first layer, mandrels 6 (Figure 4a and 4b) are positioned between each of the grooves 13 such that subsequent layers are laid over a mold form constructed by the mandrels 6 (Figure 1 and 3b). When sufficient layers are laid, a second holding panel 4 is then laid upon the stack of alternating fibers 9 and rows of mandrels 6, sandwiching them between holding panel 8 (Figure 3a). After curing the honeycomb assembly, the mandrels 6 are then removed, thus forming the honeycomb core structure.

Weight et al. does not describe providing a roller having a rotating shaft, nor providing a lobed member wrapped around the shaft and releasably secured at opposing ends of the lobed member. Referring to Figure 2, no shaft is described nor is it inherently required. Though a hole is shown in the cylindrical roller 10, a shaft within the hole is not required to perform the invention, and thus is not inherently taught. The rolling action can be performed by hand rotating the roller 10. This is not inconceivable as the sheets 9 are hand laid. *See* paragraph 0003, first sentence. Additionally, though cylindrical roller 10 is described by Weight et al. as having gear shaped lobes 11, the cylindrical roller 10 is shown as a unitary piece in the form of an elongated cylindrical sprocket. It is not described as being formed by having itself wrapped around a shaft and releasably secured at opposing ends of itself as is the lobed member in claim 1. Regarding claims 5 and 8, as claim 1 is shown to be allowable, dependent claims 5 and 8 are also shown to be allowable.

Additionally, regarding claim 5, Weight et al. does not teach or suggest enclosing the base tool, the lobed member, and the fabric within a vacuum bag, and thus, cannot and does not teach or suggest withdrawing air from within the bag and then applying heat and additional pressure to the fabric. Also, regarding claim 8, although paragraph 0016 states that "grooves 13 and ridges 14 are merely sinusoidal images of each other," the rest of that same sentence states that they have a "semi-hexagonal cross-section consistent with the hexagonal cross-section of the

mandrels 6," and thus do not really have a sine-wave or curved profile. Correspondingly, referring to Figure 2, clearly lobes 11 are semi-hexagonal in shape and not sinusoidal.

Claims 1, 3, and 8 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 1, 3, and 8 are made obvious by Graff in view of Marschke (U.S. Patent No. 6,006,806) and/or Makoui et al. (U.S. Patent No. 6,173,486).

As stated above, Graff does not teach or suggest a *lobed* member 41 mounted on a shaft and having *lobes* 43 that match the contours of the grooves 33. Instead, referring to Figure 1, Graff describes a molding roller 19 having a plurality of *rollers* rather than lobes that simultaneously engage a *pair* of contours of the molding track 16. Additionally, the roller 19 is not described as being formed by having itself wrapped around a shaft and being releasably secured at opposing ends of itself as is the lobed member in claim 1. Graff further does not disclose maintaining a select tension in the fabric as the lobes press the fabric into the grooves, as featured in claim 3, but instead deposits the laminated sheet 18 free of tensile stress (no tension). Nor does Graff disclose providing "lobes of the lobed member with a sine-wave profile," as featured in claim 8. As stated previously, Graff does not teach roller 19 having lobes.

Additionally, neither Marschke nor Makoui et al. teach that it is well known in the art to form a roller having lobes secured to a shaft of the roller much less a roller having lobes that are wrapped around a shaft and releasably secured to the shaft at opposing ends of itself.

Referring to Figure 1, Marschke describes a heated cylindrical roll 10 having a laminated construction adapted to use a steam supply and condensate return system, specifically for use in the manufacturer of single face corrugated paperboard web. *See* col. 2, lines 21-23. Referring to Figures 1-2 and col. 2, lines 39-63, the cylindrical outer wall 11 of the roll 10 is comprised of a laminated assembly of thin circular rings 13 which have an outer surface forming a tooth pattern 16 sized and shaped to form the desired flute configuration in a corrugated paper web. Also referring to Figures 3-4, each of the cylindrical rings 13 is made up of a series of flat ring segments 14 (12 shown) positioned end-to-end to form a complete circular rings 13. Referring

also to col. 3, lines 7-16, the laminated cylindrical outer wall 11 can be formed by first welding adjacent segment edges 18 of ring segments 14 to form a complete ring and welding the circular inner edges 20 of the ring segments 14. End walls 23 and 24 are then connected to form the hollow cylindrical roll 10.

Note, Marschke is not an applicable § 103(a) reference because its design is specifically for the manufacture of a single face corrugated paperboard web rather than fabric for making laminate panels and thus provides no motivation to combine references with that of Graff. *See* col. 2, lines 21-23. Nor does Graff provide such motivation. Even if it were an applicable reference, Marschke does not describe a roller having lobes secured to a shaft of the roller. Marschke merely describes a rotating cylinder 10 formed of a cylindrical wall 11 consisting of circular rings 13 having a tooth pattern 16 and comprised of ring segments 14. Referring to Figures 1 and 3, it is clear that there is no internal shaft and thus no shaft for any lobes to be secured too. In fact, it is the circular rings 13 themselves which form any shaft that may exist. Also, the cylindrical wall 11, circular rings 13 or ring segments 14 are not lobes and do not form a lobed member as described in the Application. Additionally, as the components of the cylinder wall 11 are described as being welded, clearly none of the components can be considered as capable of being wrapped around and thus capable of being unwrapped from any kind of shaft. As such, Marschke also cannot and does not describe a lobed member releasably secured to a shaft at opposing ends of itself.

Referring to Figure 1, Makoui et al. describes an embossing roll sleeve 100 consisting of a radially inner shell 102 surrounded by a resilient outer layer 103 having an outer surface 104 engraved with an embossing pattern, specifically for use in embossing paper products, such as paper towels, toilet tissue, and napkins. *See* col. 1, lines 9-11 and col. 7, lines 13-15. The outer surface 104 of the outermost embossing elements have a substantially consistent diameter, and inner surface 105 has a substantially consistent inner diameter. *See* col. 7, lines 38-43. "The embossing roll sleeve is received on and fixedly secured to a mandrel or core 106." *See* col. 7, lines 44-45. Referring to col. 7, lines 27-36, the outer layer 103 is described as material including metal alloys, ceramic or polymer material, fiber reinforced resins, or vulcanized rubber, which are capable of being engraved with an embossing pattern. Alternatively, sleeve

100 need not be covered with outer layer 103 (leaving only inner shell 102) but instead can be formed of material including metal alloys, ceramic or polymer material, or fiber reinforced resins, which are capable of being engraved with an embossing pattern. Referring to Figure 1 and col. 6, lines 19-28, embossing is accomplished by directing a substantially continuous web of paper material 10 through a smooth shaped rubber backup roll 14 to be embossed at embossing nip 22 with embossing pattern 24 (Figure 3B), by a force exerted between rolls. A second web 16 is similarly embossed at nip 36.

Note, Makoui et al. is also not an applicable § 103(a) reference because its design is specifically for use in embossing paper products such as paper towels, toilet tissue, and napkins rather than fabric for making laminate panels and thus provides no motivation to combine references with that of Graff. *See* col. 1, lines 9-11. Nor does Graff provide such motivation. Even if there were some motivation to combine, Makoui et al. would only teach placing an embossed design such as that shown in Figure 3B on each laminated sheet 18. Makoui et al. does not describe a roller having lobes secured to a shaft of the roller. Referring to Figure 2, equating mandrel 106 with a shaft, Makoui et al. merely describes a cylindrical sleeve 100 formed of interlayer 102 and outer layer 103 having an imprinted embossing pattern (Figure 3B) . This is not a lobed member. Additionally, referring to Figure 3A and col. 8, lines 6-23, the sleeve 100 is not wrapped around the mandrel 106 but is slid over the mandrel 106 similar to that of putting a wheel upon an axle. Specifically, air pressure is supplied from within mandrel 106 through air passage 124 to expand sleeve 100 in order to slide sleeve 100 over mandrel 106. Once the sleeve 100 is in position over mandrel 106, air pressure is decreased and "the sleeve 100 is fixed both axially and circumferentially with respect to mandrel 106." As such, Makoui et al. also cannot and does not describe a lobed member releasably secured to a shaft at opposing ends of itself.

Regarding claim 3, as stated above, Graff teaches depositing the laminated sheet 18 with no tension and without correspondingly teaching a method or describing an apparatus to provide tension to the laminated sheet 18, and thus teaches away from applying such tension featured in claim 3. Marschke and Makoui et al. appear to be silent.

Regarding claim 8, Graff does not disclose providing "lobes of the lobed member with a sine-wave profile," but instead describes roller 19 as using a plurality of individual and separated rollers or wheels, apparently each having their own axle. Also, as stated above, neither Marschke nor Makoui et al. teach Applicant's lobed member either.

Claims 1, 5, and 8 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 1, 5, and 8 are made obvious by Weight et al. in view of Marschke and/or Makoui et al.

As stated above, Weight et al. does not describe providing a roller having a rotating shaft, nor providing a lobed member wrapped around the shaft and releasably secured at opposing ends of the lobed member. Additionally, though cylindrical roller 10 is described by Weight et al. as having gear shaped lobes 11, the cylindrical roller 10 is shown as a unitary piece in the form of an elongated cylindrical sprocket. It is not described as being formed by having itself wrapped around a shaft and releasably secured at opposing ends of itself as is the lobed member in claim 1. Additionally, regarding claim 5, Weight et al. does not teach or suggest enclosing the base tool, the lobed member, and the fabric within a vacuum bag. Also, regarding claim 8, clearly lobes 11 are semi-hexagonal in shape and not sinusoidal.

Also, as discussed previously, neither Marschke nor Makoui et al. teach that it is well known in the art to form a roller having lobes secured to a shaft of the roller much less a roller having lobes that are wrapped around a shaft and releasably secured to the shaft at opposing ends of itself.

Note, Marschke is not an applicable § 103(a) reference because its design is specifically for the manufacture of a single face corrugated paperboard web rather than fabric and thus provides no motivation to combine references with that of Weight et al. *See* col. 2, lines 21-23. Nor does Weight et al. provide such motivation. Even if it were an applicable reference, Marschke merely describes a rotating cylinder 10 formed of a cylindrical wall 11 consisting of circular rings 13 having a tooth pattern 16 and comprised of ring segments 14, all welded together. Referring to Figures 1 and 3, it is clear that there is no internal shaft and thus no shaft

for any lobes to be secured too. Any shaft that may exist is formed by circular rings 13 which Applicant believes that Examiner equates with lobes. Thus, Marschke cannot and does not describe a lobed member wrapped around a shaft nor one releasably secured to such shaft at opposing ends of itself.

Makoui et al. is also not an applicable § 103(a) reference because its design is specifically for use in embossing paper products such as paper towels, toilet tissue, and napkins rather than fabric for making laminate panels and thus provides no motivation to combine references with that of Weight et al. *See* col. 1, lines 9-11. Nor does Weight et al. provide such motivation. Even if there were some motivation to combine, Makoui et al. would only teach placing an embossed design such as that shown in Figure 3B on each layer of honeycomb. Makoui et al. merely describes a cylindrical sleeve 100 formed of interlayer 102 and outer layer 103 having an imprinted embossing pattern. This is not a lobed member. Additionally, referring to Figure 3A and col. 8, lines 6-23, the sleeve 100 is not wrapped around the mandrel 106 but is slid over the mandrel 106 similar to that of putting a wheel upon an axle. Specifically, air pressure is supplied from within mandrel 106 through air passage 124 to expand sleeve 100 in order to slide sleeve 100 over mandrel 106. Once the sleeve 100 is in position over mandrel 106, air pressure is decreased and "the sleeve 100 is fixed both axially and circumferentially with respect to mandrel 106." As such, Makoui et al. also cannot and does not describe a lobed member releasably secured to a shaft at opposing ends of itself.

Regarding claim 5, as stated above, neither of the references teach enclosing the base tool, the lobed member, and the fabric within a vacuum bag, and withdrawing air from within the bag, air pressure outside of the bag compacting the fabric. Although vacuum bagging in general is known, Applicants submit it is unobvious to vacuum bag a composite layer on tooling that has a lobed resilient overpass member. Regarding claim 8, as a minimum, the primary reference Weight et al. teaches use of lobes having a semi-hexagon shape or profile, and thus teaches away from a lobed member with a sine-wave profile.

Claims 1-3, 5, 8, 10(13), 11, and 16 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 1, 5, 8, 10(13), 11, and 16 are made obvious by McCarville et al. (US Patent No. 5,843,355) in view of Graff and/or Fell (US Patent No. 5,543,199) and optionally further in view of Marschke and/or Makoui et al. Note, though claim 13 is canceled and the features incorporated in claim 10, any argument rejecting claim 13 now applies to claim 10.

McCarville et al describes a method and apparatus for fabricating a spar structure from a thermoplastic or other composite material. Referring to col. 8, lines 1-19, the fabrication is described in McCarville et al. with respect to a representative forming tool 72. "In the actual application, the individual layers of composite material forming the lower and upper U-shaped channels 42 and 44 are formed over the forming surfaces 59 and 61 (FIGS. 20 and 21) of the lower and upper forming tools 54 and 56, respectively." In the summary illustration McCarville et al describes forming a web 32 with prepreg composite material 68. Referring primarily to Figures 6 and 8, the individual layers of composite material 68 are first pressed downward so that the layer of material conforms to the tool contour. The edges of each layer 68 are then folded over the edges of the tools 72. After each layer 68 of prepreg used to form the web 32 is applied to the tool 72 and formed around the edges of the tool, the layers are joined together to form the upper or lower U-shaped channels as shown in Figures 5 and 6. Apparently, the forming tool 72 has upper and corresponding lower elongated stages 54, 56 which sandwich the composite material 68. The U-shaped channels 42 and 44 are joined by tacking the individual layers of prepreg together using a hot iron or by taping them together. Radius fillers 46 and 48 are then placed in the triangular gaps between the channels. Caps 50 and 52 are then placed adjacent flanges formed by folded-over teeth 74 of the web plies. The resulting composite workpiece 38 (Figure 6) is then placed in a vacuum bag and cured to form the spar 30.

McCarville et al does not, however, disclose a roller much less a *lobed* member 41 (or elastomeric member) mounted on a shaft and having *lobes* 43 that match the contours of the grooves 33, as does embodiments of the Applicant's invention, including that featured in claims 1 and 10. *See* Application, page 7, paragraph 0018, and Claims 1 and 10. Instead, though the Examiner stated she is unable to determine "how the fabric is pressed into the tool other than

stating a hot iron is used," the description is provided with respect to Figures 21-22. Referring to Figures 21-22 and col. 13, line 56 to col. 14, line 14, McCarville et al describes upper and lower tools 54, 56 which apparently form a upper and lower portions of a mold. Thus, McCarville et al does not describe a shaft, does not describe rollers, and correspondingly cannot and does not describe a lobed member. The upper tool 56 is not rolled but is positioned upon the composite material 68 placed upon the lower tool 54.

McCarville et al also does not disclose multiple iterations of placing layers of a prepeg fabric on a tool to form a multilayered panel, as featured in claims 2 and 10. The Examiner references "column 8" for the premise that it does. *See* Page 8, line 12. Applicant, however, was unable to find a passage stating that a layer of composite 68 was applied, closed in the mold, followed by such additional iterations of applying composite 68 followed by closing the composite in the mold. McCarville et al, like Graff, also does not disclose maintaining selected tension in the fabric as lobes press the fabric into grooves, as featured in claims 3 and 11. Neither references call for the use of tension and Graff specifically teaches away from it. McCarville et al. also does not apparently describe curing to include enclosing an unwrapped lobed member or enclosing a resilient elastomeric lobed overpress member with a base tool and fabric in a vacuum bag, as featured in claims 5 and 10, respectively. McCarville et al also cannot and does not describe lobes of a lobed member having a sine-wave profile because it does not have a *lobed member* as defined in Applicant's specification, as featured in claims 8 and 16. McCarville et al is merely a split mold without a shaft or rollers.

Fell describes a process for forming variable density honeycomb cores. As perhaps best shown in Figure 1 and 4, Fell describes use of lowermost formers (1) having a hexagonal cross-section. Referring also to col. 8, lines 39-48, and col. 9, lines 8-13, the lowermost formers (1) are inserted through a top layer of a preformed honeycomb starter which is not a base tool but part of the honeycomb core. Uppermost formers (4) are then inserted on top of the honeycomb. A corrugated sheet is then laid on top of the uppermost formers (4). After the topmost corrugation has been fused to the existing honeycomb, the lowermost formers (1) are then retracted and repositioned to become uppermost formers (4). Referring to Figure 4 and col. 12, lines 25-34, a toothed cylinder or wheel supplies pressure as it rolls across the honeycomb top surface. A heating means provides a jet of hot air that proceeds the path of the cylinder as the

web material is supplied. This process of alternating formers (1), (4) and laying web material continues until the honeycomb structure is formed. Note, the numbering on Figure 4 is erroneous so the above description referencing Figure 4 was without numbers.

Fell does not describe providing a base tool having contour grooves in an outer surface, but instead, as shown in Figure 1, provides a series of hexagonal shape alternating bars (formers). Additionally, Fell does not teach or suggest a lobed member that is wrapped around a shaft and is releasably secured at opposing ends of the lobed member. The toothed cylinder or wheel is in fact shown as a unitary piece to be reused throughout the formation of the honeycomb structure. It is not described as being formed by having itself wrapped around a shaft and releasably secured at opposing ends of itself as is the lobed member in claim 1.

Fell also does not teach or suggest applying multiple layers of web overtop each other, as featured in claims 2 and 10. Though arguably implementation of multiple layers is shown, (Figure 2D), the layers are not aligned with the grooves of a base tool as no base tool is introduced by Fell. Fell also does not teach or suggest maintaining a selected tension in the web, as featured in claims 3 and 11. Fell does not describe curing to include use of a vacuum bag, as featured in claim 5 and 10. Fell heats the web as it is being laid. Fell also cannot and does not describe lobes of a lobed member having a sine-wave profile because it does not have a lobed member as defined in Applicant's specification, as featured in claims 8 and 16.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure. *See* MPEP 706.02(J).

Applicant respectfully submits the Examiner has failed to meet the first element of a *prima facie* case for obviousness. First, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art,

to modify the reference or to combine reference teachings. The Examiner has the burden of showing, as such, and has not met it here. Even if the references somehow could be combined or modified, this still is not sufficient to establish a *prima facie* obviousness unless the prior art also suggests the desirability of the combination. MPEP 2143.01. No such suggestion exists.

Applicant also respectfully submits the Examiner has failed to meet the second element of a *prima facie* case for obviousness. Nothing has been shown to suggest that a combination of McCarville et al with either Graff and/or Fell further combined with either Marschke and/or Makoui would be successful.

Finally, the references when combined must teach or suggest all the claim limitations. The deficiencies of Graff, Marschke and Makoui et al have already been described above individually, and even when combined with Fell, the Examiner's cited patents are insufficient to form Applicant's invention. In accordance with the description above, neither the combination of McCarville et al with either Graff and/or Fell further combined with either Marschke and/or Makoui are insufficient to build the Applicant's claimed invention when the various features identified in the Examiner's patents are viewed in context. As a minimum, for example, none of the references describe a lobed member wrapped around a shaft and releasably secured at opposing ends of the lobed member, as featured in independent claim 1, nor curing the layers of fabric on a base tool by enclosing within a vacuum bag the base tool, the fabric overlying the base tool, and a resilient elastomeric lobed overpress member overlying the fabric, as featured in independent claim 10. Accordingly, independent claims 1 and 10 along with dependent claims 2-3, 5, 8, 11, and 16 should also be allowable.

Claims 2, 10(13) and 16 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 2, 10(13) and 16 are made obvious by Weight et al. optionally in view of Marschke and/or Makoui et al and further in view of Fell.

Fell does not teach or suggest applying multiple layers of web overtop each other, as featured in claims 2 and 10. Though arguably implementation of multiple layers is shown, (Figure 2D), the layers are not aligned with the grooves of a base tool as no base tool is

introduced by Fell. Rather than having a base tool to form a multilayered fabric panel, Fell describes use of a plurality of lowermost formers (1) and uppermost formers (4) having a hexagonal cross-section used to form a honeycomb core by laying alternating levels of web. *See* col. 8, lines 39-48, and col. 9, lines 8-13. Though Fell may incorporate multilayered fabric within the honeycomb structure, it does not teach or suggest forming a multilayer fabric panel, much less forming a fabric panel according to steps (c) and (d) of claims 1 and 10, respectively.

Also, regarding claim 10, Makoui does not describe use of lobes but only a rubber cylinder 103 having an embossed pattern formed in the rubber. Further, regarding claim 10, neither Weight et al. nor Fell describe curing to include use of a vacuum bag, nor do they teach use of an elastomeric lobed member as an overpress, much less, enclosing a base tool, fabric, and a resilient elastomeric lobed overpress member overlaying the fabric, within a vacuum bag for curing. Regarding claim 16, Weight et al. shows what it describes as lobes having a semi-hexagonal profile rather than a sine-wave profile. Fell also cannot and does not describe lobes of a lobed member having a sine-wave profile because it does not have a lobed member as defined in Applicant's specification.

Claim 4 and thus Claim 1 is not Obvious.

Though Claim 4 is canceled and the features incorporated in claim 1, the following discussion applies with respect to claim 1.

The Applicant respectfully disagrees with the assertion that claim 4 is made obvious by Graff in view of Marschke and/or Makoui as set forth above for claim 1 and further in view of Kobler et al. (US Patent No. 5,351,615).

Kobler et al. describes an offset blanket for a grooveless blanket cylinder for applying a printed image onto web material or sheet material. Referring to Figures 1-4 and col. 3, lines 49-59 and col. 4, lines 10-29, a rubber layer 7 in the form of any uniformly shaped blanket is vulcanized onto a web-like sheet metal. The sheet metal forms a carrier plate 1. The carrier plate 1 together with the rubber layer 7 are cut to size. The carrier plate 1 is 10 shaped into a sleeve and the ends carrier plate 1 are *welded* together. Referring to col. 4, lines 41-46, the

sleeve-shaped blanket is then slid onto a blanket cylinder by expanding the blanket by means of compressed air such that the blanket is mounted with frictional engagement on the blanket cylinder.

Kobler et al. does not teach or suggest use of a base tool for forming fabric panels. Kobler et al. also does not teach or suggest a lobed member wrapped around a shaft and releasably secured at opposite ends of the lobed member. Clearly, the ends are welded together. Kobler et al. further cannot and does not teach aligning prepreg fabric within any sort grooves of a base tool, nor moving a roller across grooves a base tool or curing the fabric. In fact, Kobler et al. is realistically unrelated art.

Further the Examiner has not met the requirements of a *prima facie* case of obviousness. First, there is no showing of some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Kobler et al. deals with a rubber layer 7 used in printing images on a web. Neither references describe combining the other as the combination would be nonsensical. As such, the second element requiring a reasonable expectation of success, also is not met. Adding some form of lobes surrounding Kobler's blanket cylinder would probably destroy its functionality. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure. Clearly, this teaching is only found in Applicant's disclosure. Finally, the prior art references when combined must, but as described above, teach or suggest all the claim limitations. As a minimum, neither Graff, Marschke, Makoui, nor Kobler et al. teach or suggest the lobed member being wrapped around a shaft and releasably secured to itself. As stated above, Kobler et al. is welded (fixedly connected) at its ends to form a unitary piece that is then slid over a blanket cylinder which one might equate with a shaft.

Claims 4 and thus Claim 1 and Claim 12 are not Obvious.

Though claim 4 is canceled and the features incorporated in claim 1, the following discussion applies with respect to claim 1.

The Applicant respectfully disagrees with the assertion that claims 4 and 12 are made obvious by Weight in view of Marschke and/or Makoui as set forth above for claim 1 and further in view of Kobler et al.

As described immediately above, the Examiner has not met the requirements of a *prima facie* case of obviousness. First, there is no showing of some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Kobler et al. deals with a rubber layer 7 used in printing images on a web. Neither references describe combining the other as the combination would be nonsensical. As such, the second element requiring a reasonable expectation of success, also is not met. Adding some form of lobes surrounding Kobler's blanket cylinder would probably destroy its functionality. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure. Clearly, this teaching is only found in Applicant's disclosure.

Finally, the prior art references when combined must, but as described above, teach or suggest all the claim limitations. As a minimum, neither Weight et al., Marschke, Makoui, nor Kobler et al. teach or suggest the lobed member being wrapped around a shaft and releasably secured to itself, as featured now in claims 1 and 12, and unrolling the lobed, elastomeric member from around the shaft to form the resilient elastomeric lobed over press member, and positioning the elastomeric member atop the layers of fabric, as featured in claim 12. In fact, here, the primary Examiner's reference, Weight et al., as described previously, does not even require use of a shaft. Also, as stated above, Kobler et al. is welded (fixedly connected) at its ends to form a unitary piece that is then slid over a blanket cylinder which one might equate with a shaft. Further, even if the cylindrical roller 10 could be modified to have a lobed member wrapped around a shaft, there would be no functional purpose in doing so. In Weight et al., top member 5 is provided to cover the multiple layers of combined composite core and the mold elements. *See* para. 0017, first sentence. Not only is the combination of references unwarranted, the references to not teach all claim limitations of claim 4 and claim 12, thus claim 1 and claim 12 are not obvious.

Claim 9 is not Obvious.

The Applicant respectfully disagrees with the assertion that claim 9 is made obvious by Graff optionally in view of Marschke and/or Makoui as set forth above for claim 1 and further in view of Donecker et al. (US Patent No. 5,882,462).

The deficiencies of Graff, Marschke and Makoui et al have already been described above individually, and even when combined with Donecker et al., the Examiner's cited patents are insufficient to form Applicant's invention when the various features identified in the Examiner's patents are viewed in context. Further, Donecker et al. does not teach that for which the Examiner cites it as a reference. Claim 9 features clamping the fabric at the first end of the base tool. Referring to Donecker et al. Figures 1D & 4 in col. 2, lines 23-24, and col. 3, lines 52-64, resilient strap 14 is positioned within the valley 10 across each of the fiber plies 6 after the corrugation tool 9 is removed to hold the fiber ply in the depressed position after depression with the corrugating tool 9. Clearly, the fabric 6 is not retained by a clamp at one end, but is retained by a resilient strap 14 running through the entire length of the valley 10 of the tool 1. Nor does strap 14 provide tension to the fabric 6 *when* aligning the fabric with the valley 10 of the tool 1 as it is implemented *after* pressing fabric 6 into valley 10.

Claims 9 and 17 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 9 and 17 are made obvious by Weight et al. optionally in view of Marschke and/or Makoui as set forth above for claim 1 and further in view of Donecker et al. (US Patent No. 5,882,462).

As previously stated, the deficiencies of Weight et al., Marschke and Makoui et al have already been described above individually, and even when combined with Donecker et al., the Examiner's cited patents are insufficient to form Applicant's invention when the various features identified in the Examiner's patents are viewed in context. Further, Donecker et al. does not teach that which the Examiner cites it is a reference. As stated above, Claims 9 and 17 feature clamping the fabric at the first end of the base tool. Referring to Donecker et al. Figures 1D & 4

in col. 2, lines 23-24, and col. 3, lines 52-64, resilient strap 14 is positioned within the valley 10 across each of the fiber plies 6 after the corrugation tool 9 is removed to hold the fiber ply in the depressed position after depression with the corrugating tool 9. The fabric 6 is not retained by a clamp at one end, but is retained by a resilient strap 14 running through the entire length of the valley 10 of the tool 1. Nor does strap 14 provide tension to the fabric 6 when aligning the fabric with the valley 10 of the tool 1 as it is implemented after pressing fabric 6 into valley 10.

Claims 9 and 17 are not Obvious.

The Applicant respectfully disagrees with the assertion that claims 9 and 17 are made obvious by McCarville et al. in view of Graff and/or Fell optionally in view of Marschke and/or Makoui as set forth above for claim 1 and further in view of Donecker et al. (US Patent No. 5,882,462).

As stated above, Donecker et al. does not teach that for which the Examiner cites it as a reference. As stated above, Claim 9 features clamping the fabric at the first end of the base tool. Referring to Donecker et al. Figures 1D & 4 and col. 2, lines 23-24, and col. 3, lines 52-64, resilient strap 14 is positioned within the valley 10 across each of the fiber plies 6 after the corrugation tool 9 is removed to hold the fiber ply in the depressed position after depression with the corrugating tool 9. The fabric 6 is not retained by a clamp at one end, but is retained by a resilient strap 14 running through the entire length of the valley 10 of the tool 1. Nor does strap 14 provide tension to the fabric 6 when aligning the fabric with the valley 10 of the tool 1 as it is implemented after pressing fabric 6 into valley 10.

Also, referring to McCarville et al. Figure 21, it is unclear where one would position Donecker strap 14. Clearly, composite workpiece 38 is "clamped" along its entire length by the lower and upper tools 54, 56.

CONCLUSION

It is believed that this response addresses all issues raised in the December 18, 2003 office action. Consideration of the claims is requested.

Respectfully submitted,

Date: March 12, 2004

James E. Bradley, Reg. No. 27,536

ATTORNEY FOR APPLICANT

BRACEWELL & PATTERSON, L.L.P.
P.O. Box 61389
Houston, Texas 77208-1389
Telephone: 713/221-3301
Telecopy: 713/222-3287

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